



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS 77058

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REPLY TO
ATTN OF: GB

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March 22, 1973

TO: NASA Headquarters
ER/ERTS Program Manager
Attn: Mr. Stoney

FROM: GB/Robert H. Cartmill

SUBJECT: Type II Progress Report for ERTS Project 9665

This report summarizes activities and progress on the subject
project thru February 28, 1972.

A. Evaluation of satellite remote sensing and automatic data
techniques for characterization of wetlands and marshlands.

B. NA 323

C. The progress of the investigation has been impeded by the
lack of cloud free ERTS-I coverage of the entire study area. Speci-
fically area south 29°31' N has not yet been covered by a cloud free
pass. On October 1, 1973, the framing timing problem associated
with the failure of the RBV system was thought to be responsible for
the early cut off of the MSS frame. The February 4, 1973, pass did
not cover the entire study area because the automatic cut off device
deactivated the MSS. These have been the only cloud free pass days
over the area.

My technical monitor has assisted me in working an arrangement
with the operations section to use a manual cut off for this particular
swath. Hopefully this will solve the problem.

The reason this lack of coverage is serious, although it represents
less than ten percent of the total study area, is that all of the marsh
lands are located in the extreme southern portion of the study area.

A second impediment to the study is the lack of receipt of precision
photography for the October 1, 1972, pass. This photography was ordered
in November of 1972, and has not yet been received. The precision
products are needed in order to accurately locate specific ground truth
sites of small areal extent.

E73-10467) EVALUATION OF SATELLITE
REMOTE SENSING AND AUTOMATIC DATA
TECHNIQUES FOR CHARACTERIZATION OF
WETLANDS AND MARSHLANDS Progress Report,
period (NASA) 3 p HC \$3.00 CSCL 08H

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Unclas
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Finally the study has been delayed because of the delay in the requested aircraft support. The aircraft mission scheduled for October, 1972, was not flown until January 15, 1973, because of MSS equipment problems. As of February 28, 1972, the aircraft MSS data has not been received.

d. Despite the difficulties described in section C, considerable progress has been made as follows:

1. Transparencies of all four MSS channels of the October 1, 1973, pass have been examined on the I²S Digicol color additive viewer.
2. Software has been developed to reformat the 9 track CCT's to a format which is compatible with our Aerojet General Data Analysis Station and our existing pattern recognition programs.
3. The October 1, 1972, pass has been displayed on the DAS and been film recorded. Specific areas to be used as training samples in the pattern recognition programs have been located using the DAS and statistics from some of these samples have been computed and analyzed.

Plans for the next reporting period are to complete processing the October 1, 1972, through the pattern recognition programs, producing a multicolored classification map of the area. The supporting aircraft data will be started in the data processing stream. If a cloud free pass of the southern portion of the study area is received, processing through the marsh areas will begin. If the precision products are received automatic data processing on the specific forest sites will begin.

e. Significant results are as follows:

1. Using the I²S Digicol color additive viewer an eight color classification map has been produced of a portion of the study area. Channel 3 of the MSS produced the best map.
2. Enlargements of MSS data have been accomplished by using the Data Analysis Station. The attached film recorder has three color guns which are capable of placing 2400 square elements across a 9 inch film. We have found that by repeating each ERTS element 9 times and each scan line 13 times that a map of a scale approximately 1:62,500 can be produced as a color negative film strip. This can be contact printed to produce a color map of the scale. As yet this procedure does not correct for image skew caused by rotation which is believed to be the major source of distortion and blockiness in the image. However, the final product which has not undergone any photographic enlargement is superior to photographically enlarged maps of the same scale.

f. No published articles or papers, pre-prints, in-house reports, or talks were released during this reporting period.

g. Recommendations concerning practical changes are as follows:

1. The MSS bands 1, 2, 3, 4 have the NDPF identification codes of 4, 5, 6, 7 on the photographic image. This can lead to confusion and in the case of band 4 ambiguity as to which image is band 4. Common practice as it has developed at my laboratory is to use the identification code as a band designator. I believe that this ambiguity should be removed by designating the bands in agreement with the image identification number.

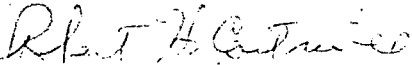
2. The Non-U. S. Standard Catalog has no date or orbit day identification on the world coverage outline maps. This makes it very difficult to locate a given image. It can only be done by comparing latitude and longitude with the maps. The dates or orbit day should be shown on the maps.

h. No changes in the standing order forms have been submitted.

i. No image description forms have been mailed to GFSC during this reporting period.

j. A data request form dated October 31, 1972, was submitted during the reporting period.

k. I do not hold a copy of specification S-250-P-1C.


R. H. Cartmill
Principal Investigator

cc: GSFC 430/Richard G. Stonesifer
GSFC 245/Robert Phillips
GSFC 650/Stamley C. Freden
GA/R. O. Piland

GB/RHCARTMILL:jas 3/22/73

